

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The Office Action dated May 24, 2010 has been received and its contents carefully reviewed.

Claims 1, 3-4, 7, 11, 12 and 15-24 are currently pending. Claims 15-22 of the pending claims are withdrawn. Claims 1 and 7 are amended and claim 24 is added, which are supported by the present specification and figures. Thus, no new matter is introduced. Reexamination and reconsideration of the pending claims, as amended, are respectfully requested.

Rejection under 35 U.S.C. §103(a)

Claims 1, 3-4, 7, 11-12, and 23 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,331,384 to Satoi (hereinafter "384") and U.S. Patent No. 6,176,667 to Fairbairn et al. (hereinafter "667").

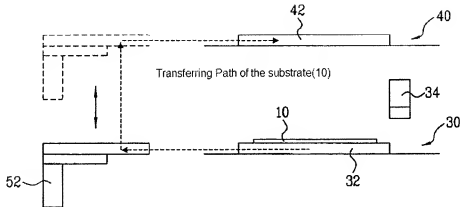
The rejection of claims 1, 3-4, 7, 11-12, and 23 is respectfully traversed and reconsideration is requested.

The Claimed Invention and its Advantages

Independent claim 1 is allowable over the cited references in that claim 1 recites a combination of elements including, for example, "a drying part positioned directly and vertically above the printing part, for drying the alignment layer, and including a dry table fixing and heating the substrate" and "a transferring part for transferring the substrate from the printing part to the drying part and including a transfer robot lifting the substrate in a vertical direction and placing the substrate on the dry table" (emphasis added).

In particular, according to one embodiment of the claimed invention, the printing part 30 prints the alignment layer on the substrate 10 using the inkjet head 34, and then the transferring part transfers the substrate 10 on which the alignment layer is printed, from the printing part 30 to the drying part 40, as illustrated on a broken line in FIG. 5, as below:

(FIG. 5 of the present application)



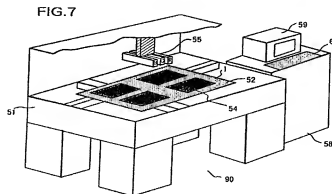
Referring to the claimed invention, the drying part dries the solvent in the alignment layer printed on the substrate transferred from the printing part which is positioned below the drying part. Therefore, it is necessary for the transferring part to move in a vertical direction, as illustrated in FIG. 5 above.

Distinctions Between the Present Invention and the Cited Art

However, the cited references including '384 and '667, singly or in combination, fail to teach or suggest at least the above features of the claimed invention.

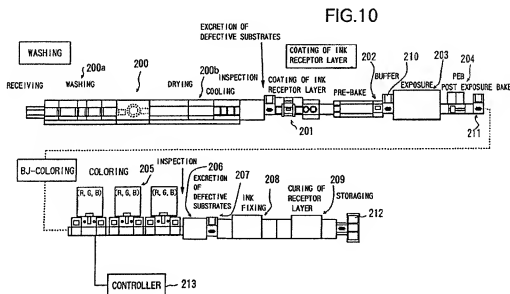
Specifically, '384 does not disclose or suggest any elements positioned above R, G, B inkjet heads of the apparatus 90, as illustrated in FIG. 7 as below:

(FIG. 7 of '384)



Also, as seen from the below FIG. 10, '384 does neither disclose or suggest a coating apparatus 201 and a heating apparatus 202 are positioned vertically to each other, nor a coloring unit 205 and a drying apparatus 208 are positioned vertically to each other, as described on col. 9, line 31 - col. 13 of '384. Further, '384 discloses every component of apparatus for manufacturing a color filter are positioned side by side in a horizontal line, as shown in FIG. 10 below:

(FIG. 10 of '384)



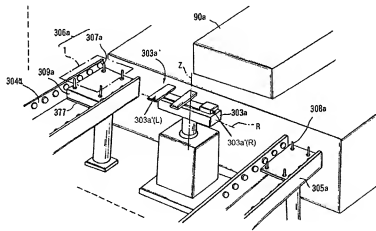
Therefore, the apparatus of '384 does not need to lift a glass substrate 1 in a vertical direction, for transferring from a coating apparatus 201 to a heating apparatus 202 or from the coloring unit 205 to the drying apparatus 208.

With regard to this point, the Examiner states at page 4 of the Office Action that '384 discloses a robot capable of motion in the vertical and radial direction of cylindrical, so the transferring part of the claimed invention corresponds to the robot of '384.

However, '384 discloses " ... the robot 303a extracts the colored glass substrate from the coloring apparatus 90a and places it on the discharge conveyor 305a. When the robot 303a places the glass substrate 1 on the discharge conveyor 305a, the pins are raised and wait in standby. The spacing between the lifting pins 308a in the direction in which the robot penetrates

is set to be greater than the width of a hand 303a' of the robot 303a. Upon receiving the colored glass substrate 1 from the coloring apparatus 90a, the robot 303a is withdrawn along its linear axis(R axis) in a horizontal plane and then the hand 303a' is swiveled clockwise amount the vertical axis (Z axis). ...", as described at col. 14, line 60 – col. 15, line 8 of '384. That is to say, the robot 303a of '384 is for transferring the glass substrate 1 from the color apparatus 90a to the discharge conveyor 305a as opposed to transferring the glass substrate 1 from coating apparatus 201 to the heating apparatus 202 or from the coloring unit 205 to the drying apparatus 208. The robot 303a is able to move in a horizontal direction such as R axis, and the hand 303a' of the robot 303a is able to spin clockwise amount a vertical direction such as Z axis, as opposed to moving in the vertical direction. For reference, a dictionary defines "swivel" being "If something swivels or if you swivel it, it turns around a central point so that it is facing in a different direction.". For example, as illustrated in FIG. 14 of '384 below, a left hand 303a'(L) is swiveled clockwise amount Z axis such as a right hand 303a'(R).

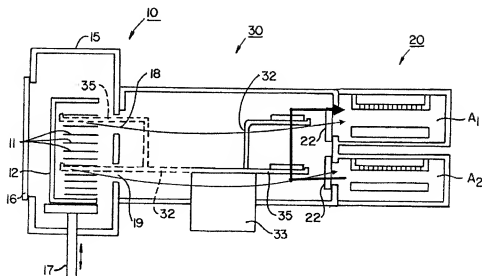
(FIG. 14 of '384)



As mentioned above, the robot 303a or the hand 303a' of the robot 303a, as disclosed in '384, does neither transfer the glass substrate 1 from coating apparatus 201 to the heating apparatus 202 nor from the coloring unit 205 to the drying apparatus 208, in a vertical direction. Therefore, the robot 303a or the hand 303a' of the robot 303a of the '384 reference does not correspond to the transferring part of the claimed invention.

Also, the deficiencies of '384 cannot be made up for by '667 since '667 also fails to disclose or suggest the claimed features. Specifically, '667 discloses only "a first wafer processing chamber A1 and a second wafer processing chamber A2 stacked one above the other". More specifically, '667 discloses "at least one set of wafer processing chambers having at least a first wafer processing chamber and a second wafer processing chamber stacked one above the other, the first wafer processing chamber for carrying out a first semiconductor fabrication process consisting of a chemical vapor deposition process, a plasma vapor deposition process, or an epitaxial deposition process, and the second wafer processing chamber for carrying out a second semiconductor different from the first semiconductor fabrication process consisting of a chemical vapor deposition process, a plasma vapor deposition process, or an epitaxial deposition process; a wafer transfer chamber coupled to the wafer storage mechanism and to the first wafer processing chamber and the second wafer processing chamber to enable wafers from the wafer storage mechanism to be transported to the first wafer processing chamber and the second wafer processing chamber" as described in claim 1 of '667, and "a mechanism capable of moving at least two wafers together from the wafer storage mechanism and placing one of the wafers in each of the first and second wafer processing chambers.", as described in claim 2 of '667. That is, the first wafer processing chamber A1 and the second wafer processing chamber A2 not only are independent, but also have no relation between these two chambers. Also, it is not necessary that the wafer transfer chamber 30 of '667 transfers a substrate from the second wafer processing chamber A2 to the first wafer processing chamber A1, as shown on blue line in FIG. 1 of '667 below. In other words, the wafer transfer chamber 30 of '667 is for only transferring at least one substrate (wafer, 11) from the wafer storage mechanism to the first wafer processing chamber A1 and the second wafer processing chamber A2 at same time, as illustrated on red line in FIG. 1 of '667.

(FIG. 1 of '667)



Moreover, the wafer transfer chamber 30 of '667 does not need to move in a vertical direction, since there is no relation between the first wafer processing chamber A1 and the second wafer processing chamber A2.

As mentioned above, '667 does not disclose or suggest that wafer 11 is transferred from the second wafer processing chamber A2 to the first wafer processing chamber A1, and the wafer transfer chamber 30 moves in a vertical direction. Also, the first wafer processing chamber A1 cannot receive the output of the second wafer processing chamber A2. Thus, the first wafer processing chamber A1 and the second wafer processing chamber A2, as disclosed in '667, do not correspond to the drying part and the printing part of the claimed invention.

Therefore, the present invention is not obvious over the cited references '384 and '667 singly or in combination. Accordingly, claim 1, and claims 3-4, 7, 11-12, 23, and 24 which depend either directly or indirectly upon claim 1, are allowable over the cited references. In view of the above, each of the presently pending claims in the present application is believed to be in immediate condition for allowance.

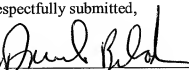
Accordingly, the Examiner is respectfully requested to pass this application to issue.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Kay Kyung-sook Chang, Registration No. 56,946 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: August 24, 2010

Respectfully submitted,

By 

Esther H. Chong

Registration No.: 40953

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Road, Suite 100 East

P.O. Box 747

Falls Church, VA 22040-0747

703-205-8000

DAVID A. BILODEAU
USPTO #42,325